

MARBLE CREEK SERVICE (PWSNO 1400036) SOURCE WATER ASSESSMENT REPORT

February 24, 2003



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR MARBLE CREEK SERVICE

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Marble Creek Service, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Marble Creek Service* describes factors used to assess susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use inside the delineation boundaries, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Marble Creek Service is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction.

The Marble Creek Service water system serves a tavern, 2 mobile homes and cabins on the St. Joe River about 8 miles east of Calder, Idaho. A 60-foot deep well that was drilled in 1980 supplies drinking water for the system. The 6-inch steel casing, fitted with a vented watertight well cap, extends from a foot above ground to a depth of 50 feet. Both the casing and 18-foot deep surface seal terminate in permeable soils. The depth of the seal is less than the 20-foot minimum for surface seals in unconsolidated formations required under current Idaho Department of Water Resources well construction standards (IDAPA 37.03.09).

The static water level in the well was 20 feet below the surface and the well produced about 4 gallons per minute in an airlift test at the time of drilling.

The system was mostly in compliance with the *Idaho Rules for Public Drinking Water Systems* when it was inspected in December 1997. No deficiencies in wellhead and surface seal maintenance were noted on the Sanitary Survey report.

Well Site Characteristics.

Hydrologic sensitivity scores are derived from information on the well log and from the soil drainage classification inside the recharge zone delineated for your well. Soils covering recharge zone delineated for Marble Creek Service are moderately well to well drained. Soils in these drainage classifications are less protective of the ground water than soils that drain slowly. The well log shows sand and boulders in the soil column above the water table. The water bearing strata, starting at 19 feet and continuing to the bottom of the well, are composed of sand and gravel (19 to 45 feet), sand and clay (45 to 47 feet), and sand gravel and boulders (47 to 60 feet).

Potential Contaminant Inventory.

The 1000-foot radius recharge zone delineated for the Marble Creek Service well is mostly undeveloped National Forest land. The well is about 161 feet south of the St. Joe River and near the margin of the 100-year flood plain. A site inspection in June 2001 determined that the well needs further evaluation for possible surface water influence. The June 2001 inspection report notes the presence of a septic tank 56 feet north of the well. Septic system components are potential sources of both nitrates and microbial contamination. IDAPA 16.01.08 requires a minimum 100-foot separation distance between public drinking water wells and septic tanks.

Camping facilities inside the recharge zone are a potential source of every type of regulated contaminant, but are a less serious threat to the Marble Creek Service well since they are further away from the wellhead than the septic tank.

Water Quality History.

Marble Creek Service has a good water quality history despite the presence of the septic tank inside the sanitary setback zone. In the period from February 1993 through the present total coliform bacteria were absent from all samples tested. Annual nitrate tests show concentrations ranging from 0.058 to 0.066 mg/l. The Maximum Contaminant Level for Nitrate is 10.0 mg/l.

Susceptibility to Contamination.

An analysis of the Marble Creek Service well, incorporating information from the public water system file, and the potential contaminant inventory, ranked the well at high risk for microbial and inorganic chemical--especially nitrate--contamination because of the septic tank 56 feet north of the wellhead. The susceptibility to synthetic and volatile organic chemical contamination is moderate. Risk factors related to the relative shallowness of the well and the permeable soils it is drilled in added the most points to the final susceptibility scores. The complete ground water susceptibility work sheet for your system is on page 6 of this report. Formulas used to compute final scores and susceptibility rankings are at the bottom of the worksheet.

Source Water Protection.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Continuing to operate and maintain the well in compliance with the *Idaho Rules for Public Drinking Water Systems* is probably the most important drinking water protection tool available to Marble Creek Service. While the system is working with Panhandle Health District to bring the well into compliance with setback requirements there are a number of voluntary drinking water protection measures the Marble Creek Service can implement. The septic system needs to be inspected yearly and pumped periodically. Proper maintenance of the septic system can help mitigate the threat to ground water quality. The system should investigate ground water stewardship programs like Home*A*Syst. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic system maintenance, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Every system should develop an emergency response plan. There is a simple fill-in-the-blanks form available on the DEQ website to guide systems through the emergency planning process.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance.

Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

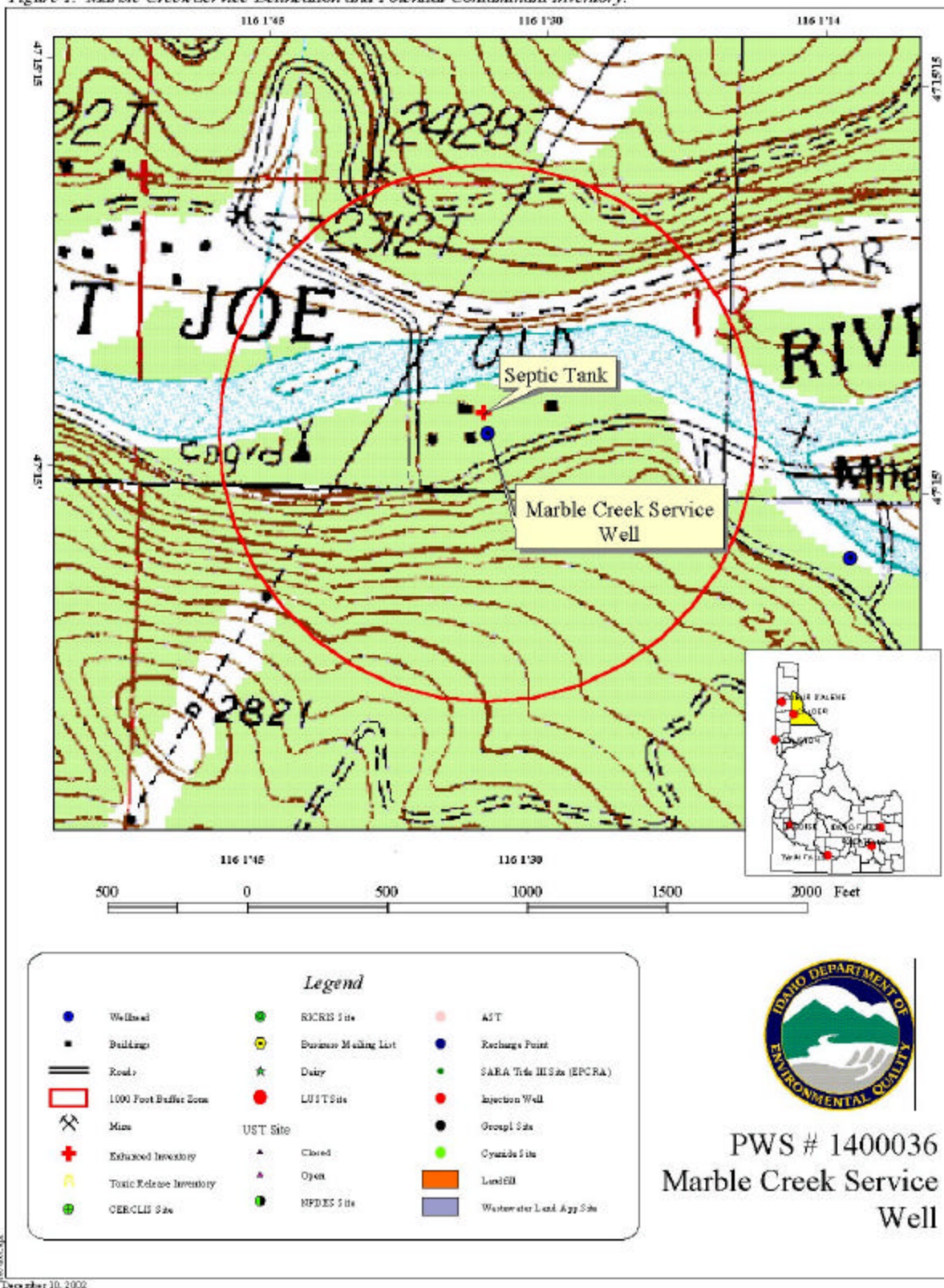
DEQ Website: www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper of the Idaho Rural Water Association (208) 343-7001 for assistance with drinking water protection strategies.

Idaho Rural Water Association Website: www.idahoruralwater.com

Home * A * Syst Website: www.uwex.edu/homeasyst

Figure 1. Marble Creek Service Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name :

MARBLE CREEK SERVICE

Well :

WELL #1

Public Water System Number :

1400036

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1. System Construction		SCORE			
Drill Date	9/17/80				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 1997				
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use	National Forest	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	YES. Septic Tank 56' from well	YES	NO	NO	YES
Total Potential Contaminant Source/Land Use Score		0	0	0	0
Potential Contaminant / Land Use - 1000-Foot Radius					
Contaminant sources present (Number of Sources)	YES. Camping, Surface Water	1	1	1	2
(Score = # Sources X 2) 8 Points Maximum		2	2	2	4
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
4 Points Maximum		0	0	0	
1000-Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use 1000-Foot Radius	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-Foot Radius		2	2	2	4
Cumulative Potential Contaminant / Land Use Score		2	2	2	4
4. Final Susceptibility Source Score		11	11	11	12
5. Final Well Ranking		*High	Moderate	Moderate	*High

*High due to presence of septic tank within 100 feet of well.

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
 6 - 12 Moderate Susceptibility
 > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ? Superfund? is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.